

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

**ASUS TECHNOLOGY LICENSING INC. AND
CELERITY IP, LLC,**

Plaintiffs,

vs.

**AT&T CORP., AT&T MOBILITY LLC, AT&T
MOBILITY II LLC, AT&T SERVICES INC., T-
MOBILE USA, INC., AND CELSCO
PARTNERSHIP D/B/A VERIZON WIRELESS,**

Defendants.

**AT&T CORP., AT&T MOBILITY LLC, AT&T
MOBILITY II LLC, AT&T SERVICES INC., T-
MOBILE USA, INC., AND CELSCO
PARTNERSHIP D/B/A VERIZON WIRELESS,**

Counterclaim Plaintiffs,

vs.

**ASUSTEK COMPUTER INC., ASUS
TECHNOLOGY LICENSING INC., AND
CELERITY IP, LLC,**

Counterclaim Defendants.

ERICSSON INC.,

Intervenor.

**NOKIA OF AMERICA CORPORATION,
Intervenor.**

Civil Action No. 2:23-cv-00486

(Lead Case)

Civil Action No. 2:23-cv-00487

(Member Case)

Civil Action No. 2:23-cv-00488

(Member Case)

JURY TRIAL DEMANDED

**INNOVATIVE SONIC LIMITED AND
CELERITY IP, LLC,**

Plaintiffs,

vs.

**AT&T CORP., AT&T MOBILITY LLC, AT&T
MOBILITY II LLC, AT&T SERVICES INC.,
T-MOBILE USA, INC., AND CELLCO
PARTNERSHIP D/B/A VERIZON WIRELESS,**

Defendants.

ERICSSON INC.,

Intervenor.

**NOKIA OF AMERICA CORPORATION,
Intervenor.**

**AT&T CORP., AT&T MOBILITY LLC, AT&T
MOBILITY II LLC, AT&T SERVICES INC., T-
MOBILE USA, INC., AND CELLCO
PARTNERSHIP D/B/A VERIZON WIRELESS,**

Counterclaim Plaintiffs,

vs.

**ASUSTEK COMPUTER INC., INNOVATIVE
SONIC LIMITED, AND CELERITY IP, LLC,**

Counterclaim Defendants.

Civil Action No. 2:23-CV-490

(Lead Case)

Civil Action No. 2:23-CV-489

(Member Case)

Civil Action No. 2:23-CV-491

(Member Case)

JURY TRIAL DEMANDED

DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF (ATL CASES)

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Defendants respectfully submit their responsive claim construction brief on U.S. Patent Nos. 10,887,868 (the “’868 Patent”) (Dkt. 333-2), 10,148,402 (the “’402 Patent”) (Dkt. 333-3), 10,798,754 (the “’754 Patent”) (Dkt. 333-4), and 10,951,359 (the “’359 Patent”) (Dkt. 333-5).

I. THE ’868 PATENT

The ’868 Patent relates to methods and apparatuses for transmission and reception using beamforming in a wireless communication system. *See* ’868 Patent at Abstract. Plaintiffs assert independent claims 5 and 13 from the ’868 Patent. These claims cover a method and system of a network node, respectively. The claims require transmitting “a first signal” to a user equipment (“UE”) to indicate “a first information” associated with a “network beam” that has been selected. This “first signal” is “a Medium Access Control (MAC) signaling.”

A. Applicant distinguished the claimed “(MAC) signaling” over the prior art by contrasting it with signals transmitted via a physical signal.

Term	Plaintiffs	Defendants
“Medium Access Control (MAC) signaling” Claims 5, 13	No construction necessary	“Medium Access Control (MAC) signal not transmitted via a physical signal”

On this term, Plaintiffs end their argument on this term by conceding the relevant point: “a MAC signal is different from a physical signal[.]” Dkt. 333 at 7. Because Applicant unambiguously relied on this same distinction to overcome a § 102 rejection based on U.S. Patent Publication No. 2013/0286960 (“Li”), the Court should incorporate it into the term’s construction. *See* Dkt. 333-13 (’868 Patent File History) at 7 (2019-02-28 Applicant Arguments/Remarks Made in Amendment).

Originally submitted claims 8 and 14, corresponding to issued claims 5 and 13, did not require that the claimed “first signal” be “a Medium Access Control (MAC) signaling.” Ex. 1 (’868 Patent File History) at 32-34 (2017-07-21 Draft Claims). The examiner rejected each of these

claims under § 102, finding that Li disclosed each of the originally filed claims' requirements based on Li's disclosure of: (1) "BS 102 sends UE 116 the information 1420, which includes its TX beams to be used. The information 1420 also can include how the BS TX beams are transmitted, e.g., by steering, or the beams being concurrently transmitted. Alternatively, BS 1102 can inform UE 116, via the information 1420, which MS RX beams to use"; (2) "BS 102 uses 1430 the selected TX beam(s) to transmit the information to UE 116"; and (3) "the information includes the resource allocation for UE 116." Dkt. 333-13 ('868 Patent File History) at 4 (2018-12-4 Non-Final Rejection). In response, Applicant amended originally submitted claims 8 and 14 to require that the claimed "first signal" be "a Medium Access Control (MAC) signaling."

Concurrent with the amendment, Applicant argued that Li failed to teach draft claim 8 and 14's limitation of "transmitting a first signal to a UE to indicate a first information for the UE to derive at least one specific UE beam used to receive or transmit at least one transmission, wherein the first signal is a Medium Access Control (MAC) signaling," stating that:

According to Paragraph [0137] of Li, FIG. 14 illustrates a process for a BS changing the beam width for data control channel. Paragraph [0140] of Li further describes the BS decides which one or multiple data control beams to include the information (e.g. the resource allocation information) for a UE, and Paragraph [0141] of Li states that the BS sends to the UE information that includes the TX beams to be used. Besides, according to Paragraph [0155] of Li, the data control channel could be a physical downlink channel (i.e. PDCCH), which means that the information is transmitted via a physical signal. Therefore, Li does **not** disclose the claimed MAC signaling to indicate the first information for deriving the at least one specific UE beam recited in claims 1, 8, 14, and 21.

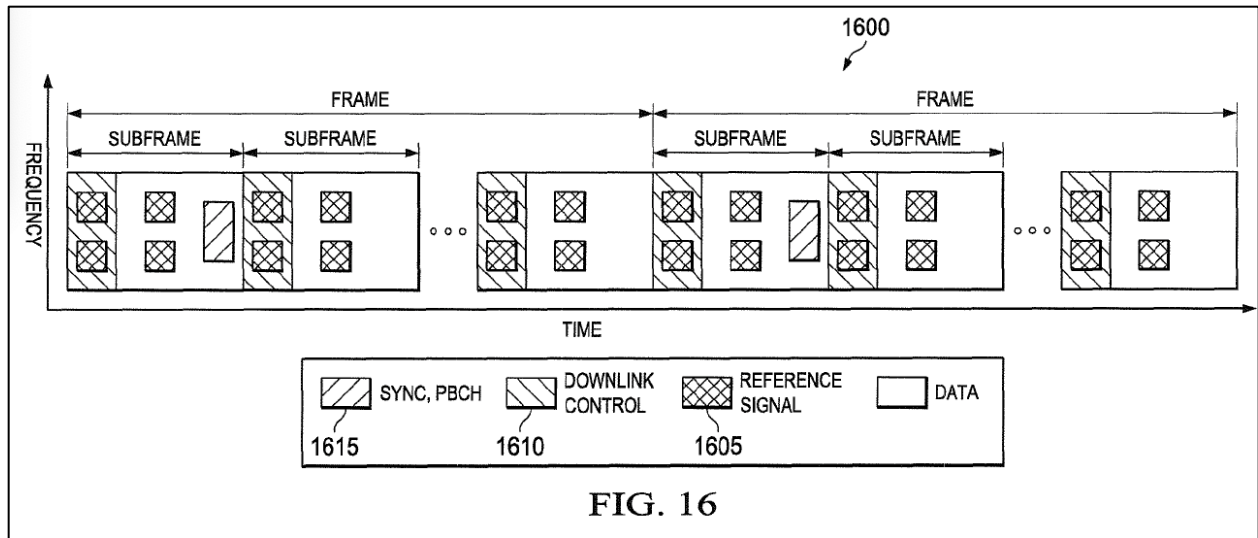
Dkt. 333-13 ('868 Patent File History) at 7 (2019-02-28 Applicant Arguments/Remarks Made in Amendment) (emphasis in original). As set forth above, Applicant sought to distinguish Li based on Paragraph [0155], arguing that "the data control channel could be a physical downlink channel (i.e. PDCCH), **which means that the information is transmitted via a physical signal.** Therefore, Li does not disclose the claimed MAC signaling[.]" *Id.* (emphasis altered).

Despite Applicant's focus on Paragraph [0155] of Li before the examiner, Plaintiffs ignore it in their brief. Dkt. 333 at 5 (quoting Li at Paragraph [0158] and citing Li at Paragraph [0156] to argue that Li's "first signal" is "PHY signal that originates at the physical layer, not the MAC layer."). Paragraph [0155] of Li contradicts Plaintiffs' position:

[0155] FIG. 15 illustrates multiplexing of data control channel (e.g., PDCCH, physical downlink control channel) on different beams in the frequency domain according to embodiments of the present disclosure. The embodiment of the multiplexing of data control channel **1500** shown in FIG. 15 is for illustration only. Other embodiments could be used without departing from the scope of this disclosure.

The "data control channel" described in Li Paragraph [0155] could be transmitted using "(e.g., PDCCH, physical downlink control channel)" but Li explained that "[o]ther embodiments could be used without departing from the scope of the disclosure." Similarly, in Paragraph [0158], Plaintiffs correctly note that Li says its "cell specific reference signals (CRS) [1605]¹ can be carried on the beams for DL control 1610, such as the physical DL control channel (PDCCH)." Dkt. 333 at 5 (quoting Li at Paragraph [0158]). But in the very next sentence, Li says its "CRS 1605 can also be carried in resources different from the DL control channel 1610." Dkt. 333-12 at Para. [0158]. Figure 16 then depicts the CRS 1605 being transmitted both in the "downlink control 1610" as well as the "data" portion of several subframes:

¹ Plaintiffs' brief omits "1605" from its quote of Li Paragraph [0158].



Dkt. 333-12 (Li) at Figure 16. Nothing in Li limits these CRS 1605 reference signals, such as those transmitted over the “data” channel in Figure 16 to those which “originate at” the “(PHY) layer” as Plaintiffs now suggest. *See* Dkt. 333 at 5.

Besides, Applicant never advanced Plaintiffs’ new “PHY layer” argument before the Patent Office. Instead, Applicant merely noted that Li’s “first signal,” such as a CRS, “is transmitted via a physical signal” and represented that, as a result, Li did not disclose Applicant’s claimed MAC signaling. Dkt. 333-13 (‘868 Patent File History) at 7 (2019-02-28 Applicant Arguments/Remarks Made in Amendment).

This statement represents precisely the type of disclaimer that the Federal Circuit has found limits the scope of a patentee’s claims. *See Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452-53 (Fed. Cir. 1985) (explaining that “the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance” and finding that such disclaimer arose from the applicant’s statement that a certain interpretation was “outside the claims”); *Hockerson-Halberstadt, Inc. v. Avia Group Int’l*, 222 F.3d 951, 956 (Fed. Cir. 2000) (finding that “the prosecution history [] reveals that the inventor disclaimed a particular interpretation of groove,

thereby modifying the term's ordinary meaning” based on the applicant’s statements to distinguish prior art); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) (“The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.”).

Plaintiffs ask the Court to ignore Applicant’s clear disclaimer based on 3GPP TS 36.321 V13.0.0 “Medium Access Control (MAC) protocol specification,” which the ’868 Patent incorporates by reference (*see* ’868 Patent at 3:9-11), as well as several other 3GPP documents mentioned in TS 36.321. Dkt. 333 at 1-3 (also discussing TS 36.211 V13.0.0 and TS 36.300 V14.2). But Plaintiffs did not preserve this argument, having failed to disclose these documents as intrinsic/extrinsic evidence upon which they would rely upon in their P.R. 4-3 identifications. *See* Dkt. 322-2 at 4. Plaintiffs’ characterization of 3GPP TS 36.321 as an “exemplary embodiment” is also, simply, incorrect. The ’868 Patent merely suggests that its “exemplary embodiments,” described after the paragraph in which TS 36.321 V13.0.0 is incorporated by reference, “may be” designed to support one or more standards, such as TS 36.321. ’868 Patent at 2:57-3:11. Plaintiffs’ general incorporation by reference does not raise TS 36.321 V13.0.0 to the level of a preferred or exemplary embodiment. *See Modine Mfg. Co. v. U.S. Int’l Trade Comm’n*, 75 F.3d 1545, 1553 (Fed. Cir. 1996) (“[I]ncorporation by reference does not convert the invention of the incorporated patent into the invention of the host patent.”); *see also Fifth Generation Comput. Corp. v. Int’l Bus. Machs. Corp.*, 416 F. App’x 74, 80 (Fed. Cir. 2011) (agreeing that certain prior art references were incorporated into the host patent but disagreeing “that every concept of the prior inventions is necessarily imported into every claim of the later patent.”).

In sum, Defendants ask only that the Court hold Plaintiffs to the representations made during prosecution of the ’868 Patent and to construe “Medium Access Control (MAC) signaling”

as “Medium Access Control (MAC) signal not transmitted via a physical signal.” That is exactly how Applicant distinguished the ’868 Patent’s claims over Li, and Plaintiffs should not be permitted to narrow the scope of their disclaimer now. *Ajinomoto Co. v. ITC*, 932 F.3d 1342, 2019 U.S. App. LEXIS 23435, 2019 WL 3558560, at *5 (Fed. Cir. Aug. 6, 2019) (“A patentee must ‘be held to what he declares during the prosecution of his patent,’ because a contrary rule would undermine ‘[t]he public notice function of a patent.’”) (alteration in original) (quoting *Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 995 (Fed. Cir. 2003)); *Hockerson–Halberstadt, Inc. v. Avia Grp. Int’l, Inc.*, 222 F.3d 951, 957 (Fed. Cir. 2000) (rejecting patentee’s “request for a mulligan that would erase from the prosecution history the inventor’s disavowal of a particular aspect of a claim term’s meaning” despite patentee’s argument that a person of ordinary skill would have understood the statement during prosecution to be erroneous)).

II. THE ’402 PATENT

The ’402 Patent claims methods and apparatuses for a base station transmitting to a UE a control signal associated with a reference signal for beam measurement. Dkt 333-3 (’402 Patent) at Abstract. The independent claims require that the control signal “triggers aperiodical transmission of the reference signal for beam measurement.” *Id.*, e.g., Claim 1. The control signal also includes: (1) a beam-related information for transmitting the reference signal for beam measurement and (2) indicates how many symbols are used to carry the reference signal for beam measurement. *Id.* The base station then transmits the reference signal for beam measurement. *Id.* The dependent claims also provide that the claimed “beam-related information” indicates “a first beam,” and the “reference signal for beam measurement is transmitted on at least a refined beam of the first beam.” *Id.*, e.g., Claim 3 (emphasis added).

A. The term “refined beam” is indefinite

Term	Plaintiffs	Defendants
“refined beam” Claims 3, 14	No construction necessary	Indefinite

The term “refined beam” in claims 3 and 14 of the ’402 patent fails to particularly point out and distinctly claim subject matter as required under Section 112. 35 U.S.C. § 112(b) (“The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.”). Thus, the term is indefinite.

As explained by Defendants’ Dr. Hansen, there are several potential interpretations of the term “refined beam”:

For instance, one interpretation would be that the “refined beam” must be narrower than the claimed “first beam” and entirely confined within the same spatial domain as the “first beam.” Another interpretation would be that the “refined beam” must be narrower than the “first beam” and has at least some overlap with the “first beam” in the spatial domain, but that it need not be entirely confined to the same spatial domain, as in the first example. A further interpretation might ignore the relative size of the “refined beam” and consider only whether it shares spatial overlap with the “first beam.” Still another interpretation might consider only that the “refined beam” is spatially different in any way at all from the “first beam.”

Dkt. 333-15, ¶ 68. The ’402 Patent does not provide any guidance as to which of these potential interpretations applies to the claims. *Id.* Defendants’ expert evidence on this point is un rebutted.

In lieu of competing expert testimony, Plaintiffs advance only attorney argument. Specifically, Plaintiffs argue just because there are multiple ways of refining a beam does not make the claim indefinite. Dkt. 333 at 10. But Plaintiffs response to the disparate potential interpretations of the claims misunderstands the point. As Dr. Hansen explains, the potential interpretations of “refined beam” are not coextensive; if one applies, the others do not. The ’402 Patent’s failure to offer any guidance as to which potential interpretation applies renders the claims indefinite.

The '402 Patent's specification provides little explanation of "beam refinement" and contains no discussion of when one beam constitutes a "refined beam" of a separate beam, as required by claims 3 and 14. At most, the '402 Patent specification explains that "[a] first general concept of this invention is that when a UE requests beam refinement or adjustment, the UE would indicate which beam(s) or beam(s) from which TRP(s) would require beam refinement/adjustment associated with the request. An example of requesting beam refinement or adjustment would be to request beam reference signal." '402 Patent, 8:13–18. As explained by Dr. Hansen, this "limited discussion does not permit a POSITA to understand when the 'beam-related information' in the claimed control signal 'indicates a first beam' and 'wherein the reference signal for beam measurement is transmitted on at least a refined beam of the first beam.'" Dkt 333-15, ¶ 67. Plaintiffs offer no expert testimony to the contrary. *See Berkheimer v. HP Inc.*, 881 F.3d 1360, 1364 (Fed. Cir. 2018) (upholding a district court's indefiniteness finding where the patent holder failed to rebut defendant's expert testimony that the disputed claim term failed to provide reasonable certainty as to the boundaries of the claim.).

Plaintiffs allege that it is apparent when one beam constitutes a "refined beam" of another beam from the "clear language of the claims and the specification describing 'the first beam' indicated by the beam-related information as the beam to be refined for transmission of the reference signal." Dkt. 333 at 9 (citing '402 Patent cl. 3 and 11:63–12:3). Plaintiffs say "[t]here is no need to question 'when one beam constitutes a 'refined beam' of a separate beam' because the refined beam in the claims is by definition a refinement of the 'first beam.'" *Id.* But that circular logic cannot save claims 3 and 14 because it renders them identical to claims 2 and 13, respectively. Claims 2 and 13 provide that the "beam-related information" indicates "at least a beam on which the reference signal for beam measurement is transmitted." The only difference provided by claims

3 and 14 is that the “reference signal for beam measurement” is transmitted on a “refined beam” of the beam indicated by the “beam-related information.” If the mere act of identifying a beam in the “beam-related information” renders the “reference signal for beam measurement” a “refined beam” of the identified beam, claims 2 and 3 are identical, as are claims 13 and 14. Such a construction should be presumed incorrect under the doctrine of claim differentiation. *See Autogiro Co. of America v. United States*, 181 Ct. Cl. 55, 384 F.2d 391, 404 (Ct. Cl. 1967) (“The concept of claim differentiation . . . states that claims should be presumed to cover different inventions. This means that an interpretation of a claim should be avoided if it would make the claim read like another one.”).

The question, then, is what makes one beam a “refined beam” of another beam. Plaintiffs offer an interpretation—“a POSA would understand ‘refined beam’ to mean a beam that has been adjusted to improve beam quality,” Dkt. 333 at 13—but it is not supported by the specification or any extrinsic evidence. On the extrinsic evidence, Plaintiffs cite none. On the intrinsic evidence, the specification does not support Plaintiffs’ interpretation. As Plaintiffs concede, according to the specification, “[b]eam refinement is a species of beam adjustment.” Dkt. 333 at 8; ’402 Patent at 7:15-24 (“For example, the direction of base station beam(s) used to transmit the aperiodic beam reference signal could be slightly adjusted compared to the periodic one so that the beam quality could be improved, refined, or fine-tuned.”). But with “beam adjustment” as the genus, the ’402 Patent fails to provide any means by which to measure the limits of the “refined” species, or how it compares to the other species, “improved” and “fine-tuned.” Plaintiffs’ proposed interpretation simply transposes the species from the claims, “refined beam,” for a different species mentioned in the specification, “improved.” Plaintiffs offer no justification for this transposition. There is no evidence in either the specification or any extrinsic evidence before the Court that a “refined beam”

is coextensive with the concept of an “improved beam.” This inability to distinguish between species illustrates the indefiniteness of the claims. *See, e.g.*, MPEP § 2173.04 (“For example, a genus claim that covers multiple species is broad, but is not indefinite because of its breadth, which is otherwise clear. But a genus claim that could be interpreted in such a way that it is not clear which species are covered would be indefinite (e.g., because there is more than one reasonable interpretation of what species are included in the claim).”).

Finally, even if Plaintiffs are correct that their proposed interpretation of “refined beam” is supported by the specification, that alone does not render the term sufficiently definite. *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1251 (Fed. Cir. 2008) “The fact that [the patent holder] can articulate a definition supported by the specification . . . does not end the inquiry. Even if a claim term’s definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope.” *Id.* Here, the alleged specification support at most raises the unanswered question of when a beam has been adjusted “to improve beam quality.” *See STX Inc. v. Brine Inc.*, 37 F. Supp. 2d 740, 754–56 (D. Md. 1999), *aff’d*, 211 F.3d 588, 54 USPQ2d 1347 (Fed. Cir. 2000) (finding a claim element with the term “improved” indefinite where the specification failed to teach “one skilled in the art how to avoid the trap of infringement in respect to a claim limitation providing an ‘improved’ invention.”). As in *STX*, the ‘402 Patent fails to provide the requisite guidance. The Court should thus find the term “refined beam” in claims 3 and 14 indefinite.

III. THE ’754 PATENT

The ’754 Patent claims methods and apparatuses for serving quality of service (QoS) flow in a wireless communication system. The systems of the ’754 Patent include a network node which transmits a message with a Data Radio Bearer configuration to a User Equipment for establishing a default Data Radio Bearer for a Packet Data Unit. ’754 Patent at Abstract. This message includes

a QFI configuration which is used to indicate whether a QFI field is present for the default DRB. *Id.* The independent claims require sending a QFI configuration that is “always set to a value indicating the QFI field is present in uplink for the default DRB.” ’754 Patent at Claim 1.

A. The term “not allowed” is indefinite

Term	Plaintiffs	Defendants
“not allowed” Claims 2,7	No construction necessary	Indefinite

Defendants propose that the term “not allowed” as it appears in Claims 2 and 7 is indefinite. Plaintiffs propose that no construction is necessary.

Claim 2 depends from claim 1, which states in relevant part that a network node “transmit[s] a first RRC (Radio Resource Control) message with a DRB (Data Radio Bearer) configuration to a UE (User Equipment) for establishing a default DRB for a PDU (Protocol Data Unit) session, wherein the DRB configuration includes a QFI (QoS Flow Id) configuration used to indicate whether a QFI field is present or not in uplink for the default DRB and the QFI configuration *is always set* to a value indicating the QFI field is present in uplink for the default DRB.” Claim 2 provides an additional limitation, *i.e.*, “wherein the network node is *not allowed* to transmit a second RRC message to the UE for reconfiguring the QFI configuration for the default DRB to no presence of the QFI field.” Claim 7 depends from claim 6 and uses “not allowed” in the same manner. Neither dependent claim informs of its scope with reasonable certainty for at least two reasons.

First, as set out in the independent claims, the “QFI configuration” is included in a DRB configuration which itself is included in an (RRC) message transmitted from the network node to the UE. *See* ’754 Patent at Claim 1 (the network node transmits “a first RRC [] message with a DRB [] configuration to a UE . . . wherein the DRB configuration includes a QFI configuration.”)

The specification confirms that the “QFI configuration” is simply a part of the RRC message transmitted from the network node. *See, e.g.*, ’754 patent at 25:17-21 (“The UE may initiate the default DRB when receiving a DRB configuration (e.g. included in a RRC message) from the gNB. The DRB configuration may include a QFI configuration.”) Claim 1 additionally requires that “the QFI configuration,” transmitted from the network to the UE in an RRC message, “is always set” to a certain value. The setting of this value in the RRC configuration message is necessarily performed before the network node transmits the message to the UE.

Despite Claim 1’s clear requirement that the “network node” is the one that sets and sends “the QFI configuration” in the first RRC message, Claim 2 confusingly adds that the “network node” is “not allowed” to send another “RRC message *to the UE for reconfiguring the QFI configuration.*” As written, Claim 2 apparently refers to disallowing the network node from sending an RRC message to the UE where the UE would then, somehow, “reconfigure[e] the QFI configuration.” This is nonsensical given that the QFI configuration was set and sent by the network node and contained in the original RRC message in the first place. Thus, a POSITA would be unable to ascertain what the network node is and is not allowed to do.

Plaintiffs’ interpretation of the claims fails to solve this problem. Plaintiffs advance an interpretation of Claims 2 and 7 that “the network node, after transmitting a first RRC message to the UE with a QFI configuration indicating QFI field is present, may not send subsequent RRC message *that reconfigures the QFI configuration* to ‘no presence’ of the QFI field.” Dkt. 333 at 13-14. Plaintiffs here replace “message [to the UE] for reconfiguring” the QFI configuration, as written in the claims, with “message that reconfigures” the QFI configuration. These are two different things, so Plaintiffs’ attempted rewrite of the claims should be rejected. Besides, even under Plaintiffs’ interpretation, it is unclear what not being allowed to send a second RRC

“message that reconfigures” “the QFI configuration”—which, according to Claim 1, was previously included in the first RRC message—could even mean.

The patent’s specification adds no clarity to the issue, stating in relevant part: “In one embodiment, the network node may not transmit a second message to the UE for changing the QFI configuration for the default DRB to no presence of QFI (i.e. QFI for the default DRB is always present). In addition, the network node may not set the QFI configuration for the default DRB in uplink to no presence of QFI in uplink.” ’754 Patent at 28:15-20. Here, the patent draws a distinction between the network node not transmitting a second message to the UE “for changing the QFI configuration” to no presence (as in Claim 2’s second message “for reconfiguring”) and the network node not setting the QFI configuration to no presence. While the scope of the restriction in the latter statement seems clear, the patent nowhere explains what the former could mean, at least with respect to the claims, given that the QFI configuration (as claimed) is a part of the RRC message.

Second, even accepting Plaintiffs’ rewrite, dependent Claims 2 and 7 are indefinite for another reason: they fail to add anything to the independent claim at least under Plaintiffs’ interpretation of the claims. In Claim 1, “the QFI configuration is always set to a value indicating the QFI field is present in uplink for the default DRB.” A POSITA would understand that if the RRC message transmitted by the network node includes a QFI configuration that is *always* set to a value indicating that the QFI field is present for a default DRB, then one would never be allowed to send an RRC message containing a QFI configuration that indicates no presence of the QFI field. “Always” indicating presence and not allowing to indicate no presence are two sides to the same coin. Because Claim 1 already precludes the possibility of the QFI configuration being set to a value indicating no QFI field, Claims 2 and 7 are indefinite.

Plaintiffs' reliance on Defendants' position in IPR briefing is inapposite. IPR institutions do not allow for challenges relating to validity outside of prior art. The PTAB has acknowledged that it cannot cancel a patent claim for indefiniteness under § 112 in an IPR. *See Oticon Medical AB et al v. Cochlear Bone Anchored Solutions AB*, IPR2017-01018, Paper No. 52 (PTAB Aug. 21, 2018) (“[W]e may not cancel a claim in an *inter partes* review by finding that claim indefinite.”) (citing *Cuozzo Speed Tech., LLC v. Lee*, 136 S. Ct. 2131, 2131-42 (2016) (“[N]or does our interpretation enable the agency to act outside its statutory limits by, for example, canceling a patent claim for ‘indefiniteness under § 112’ in *inter partes* review.”)); *See also* 35 U.S.C. § 311(b) (“The scope of *inter partes* review is limited to a ground raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications”). As such, Defendants' position in the IPR was that “for the purposes of this proceeding and the analysis presented herein, no claim requires express construction.” Dkt. 333-19 (‘754 IPR Pet.) at 15. Defendants did not waive the right to propose indefiniteness in Courts with proper authority.

Moreover, Plaintiffs' preliminary response in the same IPR actually highlights the superfluous nature of Claim 2. Plaintiffs' IPR response repeatedly states that Claim 1 requires “not only that the QFI configuration is present in the RRC message, but also that it is *always* set to a value indicating that a QFI field is also present in the uplink for the default DRB.” Ex. 2 (‘754 POPR) at 26, *See also* Ex. 2 (‘754 POPR) at 27, 30.² Because Claim 1 already requires that the RRC message always contain the QFI configuration set to indicate the QFI field is present, claim 2's “not allowed” term apparently adds nothing to the claims. Where a dependent claim

² The PTAB's denial of institution for Defendants' IPR turned on this very argument. Ex. 3 (Decision Denying Institution) at 19 (“Neither [reference] explicitly discloses that a QFI presence indicator is *always* present in the RRC message and is *always* set to a value indicating the presence of a QFI field in UL PDU transmissions for the default DRB.”)

merely “recites limitations already required by [the independent] claim” rather than “specifying a further limitation beyond those incorporated in [the independent claim],” the dependent claim should be found invalid under § 112. *Hitkansut LLC v. United States*, 119 Fed. Cl. 258, 268 (2014). Thus, in order for claims 2 and 7 to be definite, they must add an additional limitation to the independent claims. Since they do not, the claims are invalid.

IV. THE '359 PATENT

The '359 Patent is directed to methods and apparatuses for providing a control resource set configuration, including a duration and a bitmap. Dkt. 333-15 (Hansen Dec.) at ¶ 54. Of critical issue in each claim is a comparison of the duration to an “interval between” certain bits in the bitmap. *See, e.g.*, '359 Patent at Claim 1 (“not allowing to transmit the signal such that an interval between any two bit positions with the value of one in the set of bit positions in the bit map is smaller than the first duration”).

A. The parties agree that the term “interval” requires construction but only Defendants’ proposal reflects the full scope of the term

Term	Plaintiffs	Defendants
“interval” Claims 1, 12, 22	“distance between two bit positions”	“the difference between two bit positions or the number of bits between two bit positions”

As an initial matter, Plaintiffs’ proposed construction is completely unhelpful. All it does is replace the word “interval” with the word “distance” before reciting the exact language (*i.e.*, “between two bit positions”) already surrounding the term in the claims. *See, e.g.*, Claim 1. The word “distance” offers no more clarity than the word “interval” in this context. *See* Dkt. 333-15 (Hansen Dec.) at ¶ 72. And Plaintiffs point to nothing besides unsupported attorney argument to suggest otherwise. More problematic, as explained below, Plaintiffs’ construction ignores the

express definitional statements in the specification and appears to create unresolvable problems for the dependent claims.

First, the patent's specification expressly provides two—and only two—meanings for the “interval between any [two] bit position[s]” claim phrase. Dkt. 333-15 (Hansen Dec.) at ¶ 75. The patent twice says, “an interval or distance between two bit positions is the number of bits between the two bit positions.” ’359 Patent at 19:22-27, 23:52-59. U.S. Provisional Application No. 62/619,041, incorporated by reference into the ’359 Patent, says the exact same thing four more times. Dkt. 333-19 (’041 Provisional) at 28, 32, 38, 42 (“An interval or distance between two bit positions is number of bit between the two bit positions.”). Elsewhere, the ’359 Patent specification twice provides an “alternative” definition of the phrase—*i.e.*, “[a]lternatively, an interval or distance between two bit positions could be [the] difference of the two bit positions.”³ ’359 Patent at 16:42-49, 23:52-59. Taken together, the no fewer than eight statements in the patent specification reproduced above express an intent by the patentee to define the term and clearly set forth a definition. *See Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). At the very least, these statements reflect the plain meaning of the term to a POSITA in light of the intrinsic record. In the patent specification, an “interval” or distance between two bit positions is “the difference between two bit positions or the number of bits between two bit positions.” This is Defendants’ proposed construction.

³ The mathematical difference between these two possible meanings of “interval” is as follows: First, as explained in the patent in the context of the “number of bits” interpretation, the interval “between the two bits indicating value 1 in the bitmap ‘10001000000000’ is 3,” since that is the number of zeroes in between the two 1s. *See, e.g.*, ’359 Patent at 16:42-49. On the other hand, where the interval is considered to be “the difference between two bit positions,” Plaintiffs allege that there is an interval of 1 in the bitmap ‘11000000000000,’ since $13 - 12 = 1$. Ex. 4 (Plaintiffs’ ’359 Patent Infringement Contentions) at 66. This is despite the fact that there are no zeroes in between the two 1s.

Besides tracking the specification, Defendants’ proposal is further supported by the ’359 Patent’s dependent claims, which reflect the same two possible meanings of the “interval” term. For example, depending from Claim 1:

Claim 9 reads: The method of claim 1, wherein the interval is the difference between two bit positions.

Claim 10 reads: The method of claim 1, wherein the interval is the number of bits between two positions.

Dkt. 333-5. Claims 19 and 20 depend from claim 12 and further define “interval” in the same manner. Defendants’ proposed construction exactly recites the two meanings of the term as provided in these dependent claims. Plaintiffs’ proposed construction on the other hand—which almost exactly tracks one but not the other interpretation—appears intentionally designed to avoid the “number of bits between” aspect of Claims 10 and 20. It likewise excludes the specification’s embodiments where the “interval” reflects the “number of bits between” two bits. This is improper. When construing claims, “there is a strong presumption against a claim construction that excludes a disclosed embodiment.” *In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303 (Fed. Cir. 2011) (citation omitted). Plaintiff’s construction would do just that.

In arguing against Defendants’ construction, Plaintiffs fault Defendants’ Dr. Hansen for concluding that the specification provides only the two options for interval reflected in Defendants’ proposed construction. Dkt. 333 at 16. But Plaintiffs identify no other option in the patent, nor do they point out any flaw in Dr. Hansen’s logic. Plaintiffs also misleadingly cite Dr. Hansen’s discussion of the patent’s “could be” statements. *Id.* In doing so, Plaintiffs ignore the patent’s definitional “is” statements discussed above, upon which Dr. Hansen also relies. *See, e.g.*, Dkt. 333-15 (Hansen Dec.) at ¶ 57. Plaintiffs also allege that Dr. Hansen “admitted at deposition he could not actually use Defendants’ construction to determine the interval of exemplary bit maps.” Dkt. 333 at 18. Not so. Plaintiffs ignore the context of Dr. Hansen’s testimony and splice together

two separate lines of questioning to create the false impression that Dr. Hansen’s opinion is inconsistent. In truth, the first line of questioning relates to the construction of “interval,” while the second line of questioning relates to the application of claim 4 to an embodiment in the specification. Dr. Hansen’s full response to the questions pertaining to “interval” show that his testimony is consistent with Defendant’s construction of the term.

Q: Right. I’m asking for this example bit map at Column 15, line 53, where it’s one followed by 13 zeros, what would the number be? What would the interval be numerically if you applied defendants’ construction?

A: Right. I think there could be multiple Interpretations.

Q: How so?

A: Well right, because it can be the difference – you know, as I stated in, you know, page 20 of my declaration, it says the interval could be either the difference between two bit position or the number of bits between the two bit positions.

Ex. 5 (Hansen Tr.) at 65:20-66:11.

Thus, Dr. Hansen did not admit that Defendants’ construction cannot be used with exemplary bit maps. Rather, Dr. Hansen explained that there are multiple interpretations because of the two possibilities for calculating the “interval.” This opinion is consistent both with the ’359 patent and Defendants’ proposed construction.

For all these reasons, the Court should construe “interval” to mean “the difference between two bit positions or the number of bits between two bit positions.”

B. The ’359 Patent claims require a specific Order of Operations

Term	Plaintiffs	Defendants
[Order of Operations] (claims 1, 12, 22)	There is no order required for the recited method steps.	The steps of the claims must be performed in the order listed in the claims.

A claim “requires an order of steps when the claim language, as a matter of logic or grammar, requires that the steps be performed in the order written.” *Mformation Technologies, Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398 (Fed. Cir. 2014). Additionally, an analysis of antecedent basis and the specification can inform the question of whether an order of steps is required. For example, in *Hytera Communications Co. Ltd. v. Motorola Solutions, Inc.*, the Federal Circuit upheld a claim construction requiring an order for steps for a digital signal processing patent. 841 F. App’x 210 (Fed. Cir. 2021). In reaching its decision, the court noted that “each step of the method provides an antecedent basis for the steps that follow.” *Id.* at 218. The same is true for the ’359 Patent’s claims. Each requires “transmitting *a signal*” in the first limitation and then “not allowing to transmit *the signal*” in the final limitation. The claim’s use of antecedent basis for the term here clearly designates a transmission of the signal prior to not allowing the transmission.⁴

The ’359 Patent’s figures provide further support for Defendants’ construction. *See, e.g.*, *Hytera*, 841 F. App’x at 219 (relying on a figure in the patent specification “which clearly shows [one step] step before [another] step” to support an order of steps finding). *Id.* Specifically, the ’359 Patent’s Figure 7 provides a “flow diagram” of the claimed invention and uses nearly the exact same language in the diagram as it does in claim 1. Figure 7 includes four boxes, which are, in order, “START,” Step 705, Step 710, and “END.” As defined in this flow diagram, the step (705) of “the network node transmitting a signal . . .” comes before the step (710) of the “network node is not allowed to transmit the signal . . .” This is shown below.

⁴ Exactly how this two-step process is supposed to work is unclear. *Cf.* Ex. 6 (European Search Report for related EP Application, EP3515005A1) at 2 (“it is not clear how on one hand a signal indicating a bitmap is transmitted and on the other hand the same signal is prevented from being transmitted based on the contents of the same bitmap. As the skilled person would not know how to implement this invention, it appears that there is a lack of sufficient disclosure”). But this is the only order of operations supported by the patent’s claims and written description. *Id.*

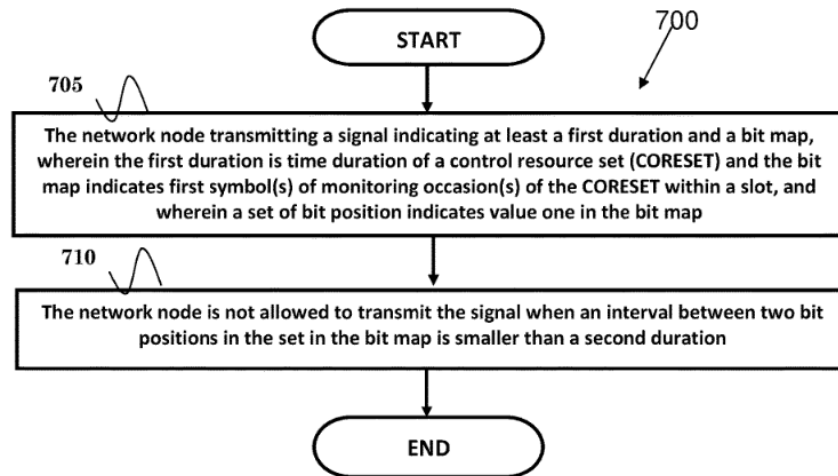


FIG. 7

'359 Patent at Fig. 7. The patent's Figure 8, which maps to the two steps of claim 12, depicts the same two-step flow in the same order. *Id.* The '359 Specification provides no alternative embodiment that adjusts this prescribed order. Because "the only embodiments are consistent with the plain meaning of the claim in the order that is written," the Court should require an order of steps for these claims. *Hytera*, 841 F. App'x at 219.

C. Claim 4 of the '359 Patent requires further construction

Term	Plaintiffs	Defendants
"The method of claim 1, wherein the network node is not allowed to transmit the signal such that interval between any bit position in the set in the bit map and the least significant bit position in the bit map is smaller than the first duration minus one." Claim 4	No further construction necessary.	"The method of claim 1, wherein the network node is not allowed to transmit the signal such that interval between any bit position with a value of 0 or 1 in the set in the bit map and the least significant bit position in the bit map is smaller than the first duration minus one."

Defendants’ proposed construction adds clarity to an otherwise ambiguous claim term. Plaintiffs attempt to gloss over this ambiguity, arguing that no further construction is necessary, in a thinly-veiled attempt to circumvent the actual claim language.

The ’359 Patent discloses bit maps with bit positions. A bit position is the position that a given bit will fall within a bit map. At each bit position, the bit can have a value of either 1 or 0. *See* Dkt. 333-15 (Hansen Dec.) at ¶ 82. A bit value of 1 indicates the start of the OFDM symbol for monitoring the CORESET. ’359 Patent at 15:41-55. While the ’359 Patent includes claims similar to claim 4 that limit the bit position(s) in question to those bit positions with a value of 1, claim 4 makes no such distinction. Because claim 4 does not limit the value of the bit position, a bit position with either value—*i.e.*, 0 or 1—defines the correct scope of claim 4.

Defendants’ construction is necessary in this case because Plaintiffs clearly intend to ignore the plain language of claim 4 and advance an unsupported interpretation. Dkt. 333-15 (Hansen Dec.) at ¶ 81. This is clear from Plaintiffs’ infringement contentions. Plaintiffs’ cited support alleging infringement of claim 4 reads: “*see, e.g., Discussion for claim element 12[d] (“not allowing to transmit the signal such that interval between **any bit position with the value of one** in the set of bit positions in the bit map and the least significant bit position in the bit map is smaller than the first duration minus one.” See, e.g., Ex. 4 (Ex. A to Plaintiffs’ Infringement Contentions) at 41 (emphasis added).* Plaintiffs, thus, intend to treat “any bit position” in claim 4 as if it says “any bit position with the value of 1” as found in claim 12. *Id.* But these are plainly two different things, making Defendants’ construction necessary.

In opposition, Plaintiffs’ confusingly point out that claim 12 discloses a similar interval. However, claim 4 shares no dependency with claim 12—Claim 4 depends from claim 1 and claim 12 is an independent claim. As such, Plaintiffs’ argument that Defendants’ claim construction

“conflicts with other asserted claims” is irrelevant. Plaintiffs also incorrectly argue that adding “with a value of 0 or 1” is a limitation being added to claim 4. However, since these two values are the only possible values of the bit positions, Defendants’ construction does not narrow claim 4 in any way. Defendants’ construction merely provides clarity that Plaintiffs intend to circumvent. Dkt. 333-15 (Hansen Dec.) at ¶¶ 79-82.

Finally, Plaintiffs’ argument that Defendants’ proposed construction would confuse the jury is misguided. As Dr. Hansen explained, where the construction refers to “an interval between any bit position with a value of 0 or 1 in the set in the bit map” it refers to “any of the bits in the bit map.” Ex. 5 (Hansen Tr.) at 69:23-70:4. This logically follows with the patent’s other claims and specification. Not only that, but Defendants’ construction here even reuses the same words as in the independent claims. *See, e.g.*, ’359 Patent at Claim 1 (“where each bit position has a value of one or zero”). Given that these other claims already use this same terminology, there is no risk that Defendants’ construction will cause additional jury confusion.

D. Claim 22 of the ’359 Patent is a Means-Plus-Function claim

Term	Plaintiffs	Defendants
<p>“wherein the processor is configured to execute a program code stored in the memory to: transmit a signal ... not allowing to transmit the signal ...”</p> <p>Claim 22</p>	<p>No further construction necessary. The term is not required to be construed under 35 U.S.C. § 112(f).</p>	<p>The term is subject to construction under § 112(6).</p> <p>Structure: transmit (TX) data processor 214 for example as shown and described in Figure 2 and at 3:15-45, and equivalents thereof.</p> <p>Function: “transmit a signal” for example as shown in Step 705 in Figure 7 and “not allowing to transmit the signal” for example as shown in Step 710 in Figure 7.</p>

A claim need not use the word “means” to be subject to construction under § 112(6). The presumption against § 112(6) can be overcome “if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015). This is the case with claim 22.

Claim 22 generally recites a “processor” configured to perform the method of claim 1. However, claim 22 provides no structure describing how the processor would achieve this process, nor does claim 22 provide how the processor term “operate[s] with the other claimed components.” *St. Isidore Rsch., LLC v. Comerica Inc.*, No. 2:15-CV-1390-JRG-RSP, 2016 WL 4988246 at 15 (E.D. Tex. Sept. 19, 2016). As such, “the ‘processor configured to...’ term[] [is] governed by § 112(6). *Id.*

The proper structure for the processor in claim 22 can be found in the specification. For example, Figure 2 is a “simplified block diagram of an embodiment of a transmitter system **210** (also known as the access network) and a receiver system **250** (also known as access terminal (AT) or user equipment (UE) in a MIMO system **200**.” ’359 Patent at 3:34-40. In Fig. 2, it can be seen that the TX Data Processor **214** is required to be connected with a transmit antenna in order to perform the step of transmitting a signal. *Id.* at 3:41-45. The specification lays out an extensive structure of processors, memory, and transmitters that must align in order to enable the processor to perform the claimed function.

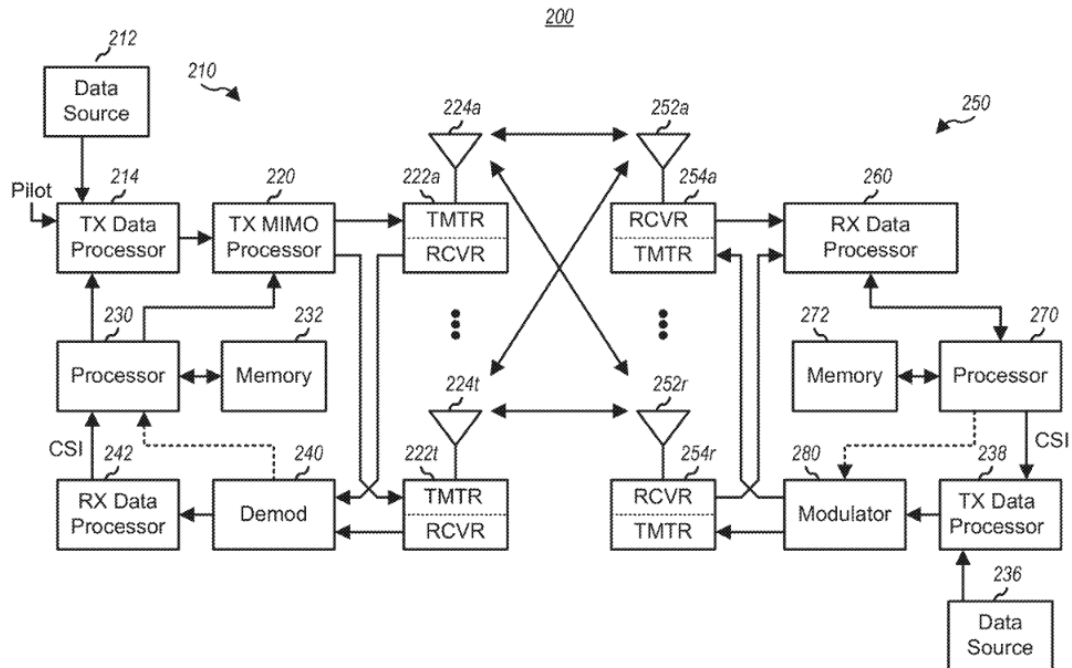


FIG. 2

The claimed function is described in Figure 7 of the '359 Patent, wherein the processor starts with “transmitting a signal indicating at least a first duration and a bit map, wherein the first duration is time duration of a control resource set (CORESET) and the bit map indicates first symbol(s) of monitoring occasion(s) of the CORESET within a slot, and wherein a set of bit position indicates value one in the bit map.” The processor then proceeds to perform step **710** wherein it is not allowed to transmit the signal when an interval between two bit positions in the set in the bit map is smaller than a second duration.” '359 Patent at Fig. 7.

Because there is extensive structure required to perform the function of the processor that is only provided in the specification, Claim 22 should be subject to § 112(6), and limited to the functions of, first, “transmitting a signal” for example as shown in Step 705 in Figure 7, and second, “not allowing to transmit the signal” for example as shown in Step 710 in Figure 7, in that order. *See supra* IV.B.

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing document has been served on all counsel of record via the Court's ECF system on February 27, 2025

/s/ Nicholas Mathews

Nicholas Mathews